

ABSTRACT  
PROCESS FOR PURIFYING OLIGONUCLEOTIDE SYNTHONS

5       A process for the purification of an oligonucleotide synthon is provided. The  
process comprises subjecting an organic solution comprising an oligonucleotide synthon  
and lower molecular weight impurities to nanofiltration whereby the ratio of an  
oligonucleotide synthon to lower molecular weight impurities in the solution is increased  
after the nanofiltration. Preferably, the oligonucleotide synthon is a nucleoside  
phosphoramidite or nucleoside H-phosphonate. The nanofiltration membrane is  
10       preferably a polyimide membrane having a molecular weight cut off of 400.

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
1 July 2004 (01.07.2004)

PCT

(10) International Publication Number  
**WO 2004/055037 A3**

- (51) International Patent Classification<sup>7</sup>: C07H 21/00, 19/06, 19/16, 1/06
- (21) International Application Number: PCT/GB2003/005474
- (22) International Filing Date: 16 December 2003 (16.12.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 0229423.9 18 December 2002 (18.12.2002) GB
- (71) Applicant (for all designated States except US): **AVECIA LIMITED** [GB/GB]; Hexagon House, Blackley, Manchester M9 8ZS (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **MCCORMAC, Paul** [GB/GB]; Earls Road, Grangemouth, Stirlingshire FK3 8XG (GB). **HARGREAVES, Stephen** [GB/GB]; Earls Road, Grangemouth, Stirlingshire FK3 8XG (GB).
- (74) Agents: **REVELL, Christopher et al.**; Avecia Limited, Intellectual Property Group, P.O. Box 42, Hexagon House, Blackley, Manchester M9 8ZS (GB).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
- with international search report
  - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 16 September 2004
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: PROCESS FOR PURIFYING OLIGONUCLEOTIDE SYNTHONS

(57) Abstract: A process for the purification of an oligonucleotide synthon is provided. The process comprises subjecting an organic solution comprising an oligonucleotide synthon and lower molecular weight impurities to nanofiltration whereby the ratio of an oligonucleotide synthon to lower molecular weight impurities in the solution is increased after the nanofiltration. Preferably, the oligonucleotide synthon is a nucleoside phosphoramidite or nucleoside H-phosphonate. The nanofiltration membrane is preferably a polyimide membrane having a molecular weight cut off of 400.